

**To:** Hiatt, Gerald[Hiatt.Gerald@epa.gov]  
**Cc:** John Wingate[JWingate@otie.com]  
**From:** Dacre Bush  
**Sent:** Thur 1/23/2014 4:35:20 PM  
**Subject:** RE: New Indoor VI Standards for TCE

Gerry,

Thanks for the lengthy response. I was expecting a hyperlink.

I did hear about the proposed standards, but did not understand that they were specifically for infants and pregnant women.

My understanding is if those standards are exceeded, then immediate response/evacuation is required.

FYI – OTIE is now the prime contractor for Pemaco (Sullivan had the contract for 5 years). We are working through a USACE contract, and working toward closure of the site.

The vadose zone soil has been remediated, and we should be able to shut down the DPE system. But there is still a TCE plume (80ft bgs) that is under the residences south of the site.

Recently the concentrations in groundwater have spiked, and then receded a bit. We do have soil gas sampling wells in the streets, but the well constructions and sampling protocol does not adhere to the latest DTSC guidelines.

So we may be re-addressing the VI exposure.

Thanks again,

Dacre Bush

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Engineering, Science and Construction

**From:** Hiatt, Gerald [mailto:Hiatt.Gerald@epa.gov]  
**Sent:** Wednesday, January 22, 2014 11:53 AM  
**To:** Dacre Bush  
**Cc:** John Wingate  
**Subject:** RE: New Indoor VI Standards for TCE

Hi Dacre, I hope all is well and that the new year is a happy, healthy and prosperous one for you.

The current (new?) TCE indoor air screening levels we are using are as follows:

Residential (i.e., 24 hour/day, 7 day/week, 50 weeks/year, 30 years/lifetime):

-cancer risk: 0.43 ug/m<sup>3</sup>

-non-cancer: 2 ug/m<sup>3</sup> (corresponds to a Hazard Index = 1.0)\

Note that b/c the HI=1 level lies within the 10<sup>-6</sup> to 10<sup>-4</sup> ELCR range (0.43 to 43 ug/m<sup>3</sup>), the protective risk range for TCE becomes effectively truncated to 0.43 to 2 ug/m<sup>3</sup>, corresponding to a 10<sup>-6</sup> ELCR to HI=1 range.

Commercial/Industrial (i.e., 8 hour/day, 5 day/week, 50 weeks/year, 25 years/lifetime):

-cancer risk: 3 ug/m<sup>3</sup>

-non-cancer: 9 ug/m<sup>3</sup> (corresponds to a Hazard Index = 1.0)\

Note, again, that b/c the HI=1 level lies within the 10<sup>-6</sup> to 10<sup>-4</sup> ELCR range (3 to 300 ug/m<sup>3</sup>),

the protective risk range for TCE becomes effectively truncated to 0.3 to 9 ug/m<sup>3</sup>, corresponding to a 10<sup>-6</sup> ELCR to HI=1 range. Also please note that these C/I screening levels can be adjusted downwards for workplaces where the norm is a workday greater than 8 hours (the tech folks in Silicon Valley claim to routinely work 10 hours or more every day).

You may also have heard that R9 is concerned about response/mitigation times when indoor air exposures exceed the HI=3 (6 ug/m<sup>3</sup> for residential; 27 ug/m<sup>3</sup> for C/I) level. This is b/c the non-cancer hazard of concern is the occurrence of congenital heart defects in infants when pregnant women are exposed-this actually applies to women of reproductive age b/c the critical period occurs at a time when many women are not aware of their pregnancy. Since this is a developmental effect, the critical period of exposure is assumed to be the roughly 3 week period in early pregnancy when the heart develops, and may even be as short as a single day as there are many specific steps/events in cardiac development. There have been a couple of articles in Inside EPA on R9 activities in this regard.

Cheers, Gerry

**From:** Dacre Bush [<mailto:DBush@otie.com>]  
**Sent:** Thursday, January 16, 2014 9:54 AM  
**To:** Hiatt, Gerald  
**Cc:** John Wingate  
**Subject:** New Indoor VI Standards for TCE

Gerry,

Hope you are doing well.

I heard that R-9 is proposing new VI standards for TCE that are 2 magnitudes more conservative than the current standards.

Is this true? And if so, what will the new VI standards be?

We need to determine if this will affect the on-going Pemaco remediation strategy.

Thanks for your help.

Dacre Bush

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